

July 24, 2001

## Section 905 (b) Analysis

### General Investigation (GI) Reconnaissance Study Kootenai River in Boundary County, Idaho

1. **Study Authority.** The Kootenai River Reconnaissance Study was initiated as a recommendation within House Report 106-253 (page 30), July 23, 1999. The House Report states: “The Committee recommendation includes funding for a reconnaissance study of flood control opportunities along the Kootenai River at Bonners Ferry, Idaho.” After starting the study and after consulting with local residents and officials, it was decided to expand the study area to include all of the Kootenai River floodplain within Boundary County, Idaho. In fiscal year 2000, \$100,000 was provided to complete a 905 (b) report and project study plan. Work began on this study in February 2000. Due to the unusual nature of the flooding problem in the Kootenai River and the need to collect accurate data on flood damages, an additional \$159,000 was provided for this reconnaissance effort and the due date for the 905 (b) report was extended to July 31, 2001.

The underlying study authorization for this work is a resolution of the U.S. Senate Committee on Public Works dated July 27, 1962. This resolution requested the Corps of Engineers to review previous reports on the Columbia River and tributaries to determine if any additions or changes should be made to the existing water resource system. The Flood Control Act of 1970 authorized the Corps of Engineers to review the operation of Corps-built projects. The Corps was asked to recommend any appropriate changes to the structures or their operation in view of changed physical and economic conditions and in the interests of improving the quality of the environment.

2. **Study Purpose.** This report is a preliminary analysis, in accordance with the guidelines of Section 905(b) of the Water Resource Act (WRDA) of 1996, to determine if there is a federal interest in pursuing further studies related to water resource problems. The primary areas of concern to be addressed in the study are seepage problems associated with a high water table, increased erosion along the banks of the Kootenai River, and ecosystem restoration in the Kootenai River. The seepage problem is of particular interest to some of the farmers in the Kootenai River floodplain. When there are high river flows in the springtime and early summer, some river water flows underground (underneath the levees) and causes seepage areas in fields that adversely impacts crop production. An unusual aspect of this problem is that in an effort to improve the white sturgeon population in the Kootenai River and prevent the population from becoming extinct, springtime and early summer flow releases have been increased since the early 1990’s, and this may have adversely impacted crop production.

3. **Location and Description of Study, Study Sponsor, and Congressional District.** The Kootenai River drains an area of 19,300 square miles, including 8,985 square miles

upstream of Libby Dam. Three-fourths of the total drainage lies within British Columbia. The Kootenay River (Canadian spelling) has its source in the Canadian Rockies near the easterly border of British Columbia. The river flows southward until it enters Lake Koocanusa (which is the reservoir of Libby Dam). The lake lies generally in a north-south direction with 42 river miles in Canada and 48 miles in northwestern Montana. Downstream from Libby Dam the Kootenai River begins a 116-mile northwesterly course that flows 50 miles through Montana and 66 miles through the Idaho panhandle in Boundary County, Idaho. The river then flows back into British Columbia, enters Kootenay Lake at Kootenay Landing, leaves the lake near Nelson, and makes a swift descent to its confluence with the Columbia River at Castlegar. Libby Dam, which was completed by the Corps of Engineers in 1973 and first full pool achieved in 1974, heavily influences Kootenai River flows from the dam downstream to Kootenay Lake.

The study area floodplain within the Kootenai River drainage is within Boundary County, Idaho. Boundary County is at the extreme northern end of the Idaho panhandle, and shares a border with British Columbia. A special emphasis is placed on the floodplain from just upstream of Bonners Ferry (near river mile 153.5) downstream to the Canadian border (near river mile 105.5), which is a distance of about 48 river miles. This is the area with the identified seepage and bank erosion problems, and it is also within the area of the endangered white sturgeon. **This floodplain area will be referred to throughout this report as Kootenai Flats.** Local residents and officials have notified the Corps of Engineers and other agencies of these problems, especially the seepage problem, since releases from Libby Dam were modified in the early 1990's to assure the survival of various fish species downstream of Libby Dam. This report then will concentrate on the identification of problems associated with the change in the Libby Dam flow regime, and what might be done to mitigate these problems.

Because the white sturgeon (*Acipenser transmontanus*) is important to this study, some background information on this fish will be presented. The white sturgeon of the Kootenai River was listed as endangered on September 6, 1994 by the United States Fish and Wildlife Service (USFWS). This population has been in general decline since the mid 1960's, and there has been very little recruitment in the last 20 years. Modification of the Kootenai River by human activities such as industrial development, floodplain diking, and dam construction has changed the characteristics of the Kootenai River, altering sturgeon spawning, incubation, and rearing habitats and overall biological productivity. Contaminants and lack of nutrients may also be factors affecting sturgeon reproduction and recruitment. The short-term recovery objectives for the sturgeon are to prevent extinction and to re-establish successful natural recruitment. The long-range objectives are the re-establishment of a self-sustaining population and the restoration of productive habitat, in order to downlist to threatened status and subsequently delist this population when recovery is well established.

The sponsor of this flood damage reduction study is Boundary County, Idaho. The Congressional District is District 1. Representative Butch Otter, and the two senators (Mike Crapo and Larry Craig) have all taken an active interest in this study.

**4. Discussion of Prior Studies, Reports, and Existing Water Projects.** Many studies and reports have been completed that address the construction of Libby Dam, and the impact that various Libby Dam flow regimes would have on the Kootenai River in Boundary County, Idaho. This section will begin with a brief description of the Libby Dam project itself, it will follow with a discussion on the year 2000 U.S. Fish and Wildlife Service Biological Opinion for operation of the Federal Columbia River Power System, and then it will discuss the main reports used to produce this 905 (b) report. The last entry is a study that the Seattle District is presently conducting which will be helpful in addressing the Boundary County seepage problem in the future. A complete listing of every report written about the dam and the Kootenai River is beyond the scope of this report.

- a. Libby Dam. Libby Dam Project, completed in 1973, is located in northwestern Montana in Lincoln County, about 11 miles east of Libby, Montana. The dam is on the Kootenai River near river mile 222, which is about 70 miles upstream of Bonners Ferry. This project is a major unit of the comprehensive water resource development plan of the Columbia River basin in the United States and Canada. The project was authorized to provide storage for local flood control protection in Montana and Idaho, flood control on the lower Columbia River, and hydroelectric power generation at both the site and downstream powerplants. The first flood control priority is to control floods in the Kootenai basin as great as the largest known flood on the Kootenai River (the flood of 1894) which was approximately a standard project flood. Incidental purposes of the project are navigation, recreation, and fish and wildlife. Seasonal storage regulation at Libby Dam project has eliminated most of the overbank flood potential on the Kootenai River (which was a springtime occurrence) while increasing average wintertime streamflows required for hydropower and flood control storage drawdown. The reservoir (Lake Koocanusa) is regulated between elevations 2459 feet and 2287 feet. The reservoir has a usable storage capacity of almost 5,000,000 acre-feet. The dam is a concrete gravity structure, and the powerhouse has 5 working generating units with a total hydraulic capacity of about 26,500 c.f.s.
- b. The 2000 Biological Opinion. The Corps of Engineers, the Bureau of Reclamation, and the Bonneville Power Administration (known as the action agencies) completed a biological assessment in December 1999 on the impacts of the Federal Columbia River Power System (FCRPS) on threatened and endangered species. In response to this request, the US Fish and Wildlife Service delivered its Biological Opinion on December 20, 2000. One of the fish species mentioned in this opinion was the Kootenai River white sturgeon. The opinion has many details, but a gross simplification would be that it calls for a block of water from Libby Dam which, with guidance from the Fish and Wildlife Service, can be used to provide better flows for white sturgeon in the period late May through early July. The size of the block of water would depend on the forecast of inflow to Libby Dam. Where and how the water is measured is presently under discussion among the Corps, the Fish and Wildlife Service, the Bonneville Power Administration, and the State of Montana. Actually, since 1992, and with guidance from the Fish and Wildlife

Service, the Corps has been introducing more water into the river in the late spring/early summer time frame to help sturgeon. The 2000 guidance is somewhat more flexible than the previous guidance. It should be noted that although the present fish flows provide more water in the spring than the way Libby Dam used to operate from the period 1973 to 1990, the Kootenai River used to experience major floods in this time frame.

- c. Kootenai River Flooding and Erosion Study, by HDR Engineering, Inc., August 2000, and phase 2 of this study in May 2001. These reports were produced by HDR for the Corps as input into the 905 (b) report. The studies were at a reconnaissance level of detail in that they were based on a fairly quick review of previously existing reports and information, and relatively little on the collection of new data. The August 2000 report discusses background information on Libby Dam, the Kootenai River in Boundary County, dam flow regimes, and endangered fish species and flows to protect those species. The main thrust of the report is to discuss the magnitude of the two main agricultural problems along the Kootenai River since the flow regime was altered in the early 1990's (increased bank erosion and increased seepage problems stemming from a high water table) and to discuss possible projects that would mitigate these impacts. One of the report conclusions was that "Continued efforts by the regulatory agencies to enhance the habitat for white sturgeon will likely result in greater agricultural damage." The May 2001 report discusses the practicality of building an interceptor ditch within all of the Kootenai Flats drainage districts in order to control the river seepage problems, and the cost of rehabilitating the damaged levees within Kootenai Flats. The report recommendations state that the interceptor ditch solution would not be a sound, practical solution to controlling the seepage problem, and that the reconnaissance level cost of repairing the approximately 16.3 miles of damaged levees is estimated to be \$23,150,000. The report also noted that more work would be needed to assess the levee situation, and that further discussions should be held with individual drainage districts and property owners to evaluate the feasibility of drainage improvements to handle specific seepage areas.
- d. Kootenai River Agricultural Impact Study, by Aaron Harp and Tim Darden, June 2001. This report was produced for the Corps as input into the 905 (b) report. The study was at a reconnaissance level of detail. The report outlines how cost and returns for field crop production in Kootenai Flats can be affected by seepage from the river during periods of high water in the spring and early summer. The report conclusions included: river levels above 1758 feet at the Bonners Ferry gage that are sustained for a week or more produce enough seepage to begin the process of crop losses for some farmers; this problem expands as the river elevation rises and is sustained for longer periods; the estimate of agricultural losses to winter wheat, spring wheat, and barley due to river seepage in 1997 was \$1,207,615, or about \$151 per affected acre (based on damage to 8,000 acres); pumping costs are higher during the wetter spring months; and damage to hop production in 1997 was about \$379,276 or \$4,515 per acre.

- e. Kootenai River Flood Control Study, Analysis of Local Impacts of the Proposed VARQ Flood Control Plan, by the Seattle District of the Corps of Engineers, January 1998. This principal investigator of this Corps report was Patrick McGrane. This report was valuable in providing a reconnaissance level economic analysis of flood damages, groundwater agricultural damages, and pumping power costs associated with various Libby Dam flow regimes. Several of the important conclusions presented in this report were also used in the HDR report and the Harp/Darden report (see paragraphs c and d above). This report still presents the best estimates of average annual damages within the Kootenai Flats area for various Libby Dam flow release regimes.
- f. Stage-frequency curves for Kootenai River at Bonners Ferry, Idaho, by the Seattle District Corps of Engineers, March 2001. The author of this document was Ken Brettmann. This report was used to understand how various management alternatives for Libby Dam impacted river elevations at the Bonners Ferry gage for both 30-day average peak stages and 15-day average peak stages. With knowledge concerning how seepage impacts agriculture (see study d above), then impacts of the various management alternatives on agriculture could be roughly estimated.
- g. Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement. This EIS is presently under preparation by the Seattle District of the Corps of Engineers. Flood control and hydropower operations at Libby Dam and Hungry Horse Dam have altered the natural river hydrology of the Columbia Basin headwaters. These reservoirs store the spring snowmelt runoff to control floods, and they release higher than natural flows in the fall and winter for power production. Some listed fish populations in the Columbia basin (Kootenai River white sturgeon and several Columbia River salmon and steelhead stocks) require high spring flows, which historically were provided by snowmelt. The US Fish and Wildlife Service and the National Marine Fisheries Service have recommended actions in their 2000 Biological Opinions for operation of the Federal Columbia River Power System which would modify flows for the conservation and recovery of listed species. In order to help recover listed fish populations, the Corps of Engineers and Bureau of Reclamation must determine alternative methods of operating Libby, Hungry Horse, and Grand Coulee dams and reservoirs. The draft of this EIS is presently scheduled to be completed in the fall of 2003, and the final EIS and record of decision should be completed by the spring of 2004.

5. **Plan Formulation.** This section will first discuss background information on the study area; then study area problems, concerns and constraints; then list the flood damage reduction potential solutions that have been identified to date; and finally select a solution that best addresses flood damage reduction while meeting the concerns of the sponsor.

- a. Background information.

- (1) Boundary County. Boundary County, Idaho, is a small, rural county with a 1999 population estimate of 9,977. The largest city is Bonners Ferry, which has

close to 2,200 people. The county is heavily dependent on agriculture and tourism.

- (2) Farming within Kootenai Flats. The study area consists of farms within 16 drainage districts in Kootenai Flats that total about 35,000 acres of agricultural land. Major crops produced in the study area include winter and spring wheat, barley, canola, timothy seed, and hops. According to the 1997 Census of Agriculture, approximately 8,800 acres of spring wheat, 8,600 acres of winter wheat, 6,200 acres of barley, and 500 acres of canola were harvested in Boundary County. The great majority of this arable land is drained by a series of levees and diversion ditches that drain water to the Kootenai River. It is estimated that close to 100 miles of levees exist within the Kootenai Flats drainage districts. When the river level rises above outflow gravity drains, pumps are used to remove water from the land.

b. Problems, concerns, and constraints.

- (1) Flooding. As identified in section 1 of this report, Study Authority, the main purpose of this study is to fund a reconnaissance level study of flood control opportunities along the Kootenai River in Boundary County, Idaho. Libby Dam, which was completed in 1973, has successfully reduced overbank flooding within the Kootenai Flats area. Huge spring floods used to devastate this area, including flooding of the city of Bonners Ferry. Although the area has experienced no overbank flooding since the completion of the dam, some farmers still do experience seepage problems related to high river flows during the spring and early summer months. As the Kootenai River elevation increases beyond elevation 1758 (as measured at the river gage at Bonners Ferry) and stays at the higher elevation for a week or more, many farmers in Kootenai Flats begin to experience seepage that threaten crops that have already been planted, or force farmers to make difficult decisions such as not to plant in extremely wet areas, or not to spray in affected areas. In the last seven years (1995 to 2001) this spring and early summer seepage problem has been a significant problem during the wet years of 1996 and 1997, but for the other 5 years this has not been a problem. Looking at 1997, the report by Aaron Harp and Tim Darden (see report 4d) estimates that the combined crop losses in 1997 were \$1,207,615 within Kootenai Flats. Of the 8,000 acres damaged in 1997, 2,000 of these had yield loss, 5,000 were drowned, and 1,000 acres could not be planted due to wet soil. Drainage district pumping costs were also greater in 1996 and 1997 than the other years. For hops production at Elk Mountain Farms, the report estimates that 84 acres were flooded in 1997, at a cost of \$379,276. It should be noted that the 2000 Biological Opinion (see Section 4.b) calls for increasing late spring and early summer flows in the Kootenai River, and this would adversely impact farmers during some years. However, it should also be noted that for some wet years, such as 1996 and 1997, field seepage problems would occur even without fish flows.

- (2) Average annual damages. The paragraph above provides an estimate of agricultural damages from seepage during 1997, a wet year. What about average annual damages? The 1998 report by Pat McGrane (see report 4.e) still provides the best reconnaissance level information on this subject. With Libby Dam in place, this report looked at agricultural seepage problems for pre-fish flows (before 1992), present fish flows from Libby Dam, and other Libby Dam flow regimes which are being studied right now. In the McGrane report, the pre-fish flows are identified as "BASE-CRT63" and the present fish flows are identified as "SOSPA." Under the category "Groundwater Agricultural Damages" (the seepage problem) the report estimates that the BASE-CRT63 average annual damages are \$243,000 and the SOSPA average annual damages are \$758,000. The difference, \$515,000, would represent the estimate for average annual damages being experienced by Kootenai Flats farmers since the Corps of Engineers began fish flows in the early 1990's. Note that this figure was based on many reconnaissance level assumptions, and we cannot say that our recent studies, also at a reconnaissance level, fully corroborate this figure. However, it is safe to say that seepage problems are important to some Kootenai Flats farmers during wet years, this problem begins to be significant when the gage at Bonners Ferry rises above 1758 for at least a week, and that water for fish added to the river during the late spring/early summer period could economically impact some farmers.
- (3) Bank and levee erosion. Prior to Libby Dam, spring runoff events would result in flood flows that would commonly exceed 80,000 cfs, which corresponded to a stage of 1770 feet at Bonners Ferry. To protect the town of Bonners Ferry and farms within Kootenai Flats, levees were constructed and maintained by local drainage districts. After Libby Dam was completed, the spring floods were eliminated and now spring high flows seldom exceed 35,000 cfs. However, bank erosion, always present in rivers, appeared to be aggravated by releases from Libby Dam. Dam releases, which followed the power needs of the Pacific Northwest, introduced daily fluctuations of several feet within the river, and this undoubtedly aggravated bank erosion and erosion to river facing levee slopes. It should be noted that recently the practice of daily fluctuation of the river for power loads has been reduced, and it is hoped that the study area bank erosion problem will abate. The present problem is that the bankside levees have been weakened by the previous operation of Libby Dam (and due also perhaps to the lack of levee maintenance by the levee owners), and now even a small flood could cause overbank flooding within some areas of Kootenai Flats. (Note: this levee erosion problem caused the Corps of Engineers and the National Weather Service in 1996 to lower the flood stage at Bonners Ferry to elevation 1764, and local officials are presently asking the Corps and Weather Service to lower the stage even further to 1761.) The report by HDR mentioned in Section 4.c estimates that the costs for the repairs to about 16.3 miles of damaged levees in Kootenai Flats are slightly over \$23,000,000.

- (4) Boundary County financial position. As stated in section 5.a.(1), the county is a small (under 10,000 residents), largely rural county that has little in the way of financial resources that it can use to solve problems, some of which, in this case, are influenced by the actions of the Federal government. For instance, normally the next phase of a Corps of Engineers General Investigation Study is the more detailed, and much more expensive feasibility phase, which is cost shared 50-50 between the sponsor (e.g. Boundary County) and the federal government. Feasibility studies of over \$1,000,000 are common. Boundary County does not have the resources to participate in such a study. So if the federal government is to help Boundary County with its seepage and levee erosion problem, then a nontraditional solution would be needed.
- c. Alternative solutions. Throughout the course of this reconnaissance phase study many possible solutions for reducing seepage and bank erosion problems have been discussed. In this section all known solutions will be discussed, at least briefly, and study constraints, such as the need to address sturgeon concerns and Boundary County finances, will be brought into bear on the feasibility of pursuing the solution.
- (1) Large construction project for all of the drainage districts. All the deteriorating Kootenai River levees could be repaired, and a large interceptor ditch could be built behind the levees in all the Kootenai Flats drainage districts to intercept the river water that seeps under the levees. This solution is very impractical and not economically feasible. Repairing all the levees would cost over \$23,000,000, and it is not certain that all the presently damaged levees actually need to be repaired. The interceptor ditch, which at first looked promising, turned out to not be a practical solution for addressing the seepage problem in the Kootenai Flats area. The Corps could find no “one size fits all” construction project to address the seepage and levee repair problems faced by all of the drainage districts.
- (2) A construction project unique to each drainage district. Each of the Kootenai Flats drainage districts could be looked at in detail, and a plan to reduce seepage problems and levee erosion could be created that would be unique to each drainage district. For instance, in some districts pumping capacity could be increased, in others the levee could be repaired, and in others the drainage ditches could be expanded. For some districts very little may be needed. This construction solution would be much more practical and less costly than (1) above. This potential solution seems to hold much promise, but it is still doubtful that the local sponsor, Boundary County, could, on its own, afford to cost share the detailed feasibility study with the Corps.
- (3) A change in the present flow regime, return to old regime. The present flow regime, which adds more water to the river in late spring and early summer for fish concerns, could be revisited. The old Libby flow regime, which was used from the mid 1970’s to the early 1990’s, could be substituted. While this would



probably satisfy the sponsor and many local residents as it would reduce their seepage problem, this would not be viewed by the Fish and Wildlife Service and others as being helpful to saving the Kootenai River sturgeon from extinction.

- (4) Buy out farmers that are having severe seepage problems. Farmers that are experiencing considerable damage from the higher fish flows could be bought out, partially or in total. The purchased land could enlarge the existing fish and wildlife reserve in Kootenai Flats. This idea was recently suggested by the Fish and Wildlife Service and it was met with disapproval in the local community. The idea was quickly withdrawn. There is little likelihood that this idea would be acceptable in the near future.
- (5) A compensation package for farmers experiencing severe seepage and bank erosion problems. Congress could create a compensation fund that would be given to farmers in Kootenai Flats that experienced damage from Libby Dam operations. This could address the additional seepage from the fish flows, or the increased bank erosion from the way the dam used to operate for power production. This potential solution was actually used before in the Kootenai Flats area. Section 56 of Public Law 93-251, in March 1974, created a compensation amount of \$1,500,000 (maximum) to compensate Kootenai Flats residents for damages due to the operation of Libby Dam. The funds were paid out by the Corps in the 1970's and 1980's until they were exhausted. The argument could be made that since a compensation package has already been made, and farmers reimbursed, then this shouldn't be used again. Another argument could be made, however, that not all residents who received damages were compensated, and the fish flows which were started in the early 1990's have changed conditions in Kootenai Flats.
- (6) Crop insurance. Modifications to crop insurance rules might be used to address damage. This solution would depend on another agency, the US Department of Agriculture, making the appropriate changes. If river levels are not going to exceed a damage threshold every year, then farmers might be able to choose to pay a premium for the acres that they know will be damaged if the river level rises above a threshold for a certain period. This may be acceptable to the community because individual landowners decide what is best for them with no changes in who controls the land.
- (7) Utilize third party owners. If funded by Congress, the Corps, or some other agency, could purchase problem areas and then grant them to third parties, particularly a local land trust. The trust could allow the farmers to lease the acres if they so desired. If not, the trust would be responsible for keeping the weeds under control. The key to this would have to be the nature of the local trust. A locally controlled land trust, run by local community members might be

acceptable. The Nature Conservancy, for example, may be more difficult for local people to accept.

- (8) Augment the wetland reserve program. The USDA Wetland Reserve Program already operates in Boundary County, but the pool of funds for the county is limited. The program could be augmented via appropriations. Land is taken out of production for a contracted period and allowed to return to seasonal wetland. If enough contiguous acres on a given farm are damaged, this gives the landowner an option to farm around the problem area. This would probably be less acceptable to the community because land is taken out of production. This may be somewhat mitigated by the fact that the landowners get to decide.
- (9) Continuing the seepage discussions and fixing the damaged levees. In an effort to continue the seepage discussions and to continue to collect information on the impact of fish flows to farmers, these subjects could be discussed under the Corps' present "Upper Columbia Alternative Flood Control and Fish Operations Environmental Impact Statement" (see section 4.g). This EIS could be expanded to discuss, in more detail than had been originally planned, the impact that fish flows have had on crop production in Kootenai Flats, and the impact that future alternative Libby Dam operations would have on crop production. With additional information and discussions in a public forum that an EIS brings, it is more likely that a reasonable solution to the "fish versus farmers" dilemma will be found. The draft of this EIS is due in the fall of 2003, with the final in the spring of 2004. Continuing these discussions in the EIS process would require no cost sharing from Boundary County.

Concerning the need to repair some or all of the deteriorating levees in Kootenai Flats, Boundary County could request that particular levees be inspected by the Corps of Engineers for possible inclusion in the Corps' PL84-99 levee rehabilitation program. This program allows for the Corps to help rehab levees that have been damaged by a flood, so long as the levees are active within the Corps program. If the Corps inspection reveals that some levees meet the minimum Corps standards, then these levees will be included within the program. If the inspection reveals that some of the levees are substandard, then Boundary County will be given an opportunity to repair the damaged levees. The county can seek funding from the local drainage districts, from an Economic Development Agency grant, or from some other sources. Because some of the damage to the levees has probably been caused by the way Libby Dam used to operate, this may increase the county's chance of getting some special funding.

- d. Selection of a solution for further study. Of the 9 alternative solutions discussed in the previous section, the alternative that best meets the needs of the sponsor and still addresses flood damage reduction is alternative 9, continue the seepage discussions and fix the damaged levees. This alternative is in itself not a complete alternative as it does not specify how the seepage dilemma will be solved, but it does provide

for additional time and effort to address this concern within an existing EIS process. Likewise, there is no assurance that if the Corps levee inspection finds that some Kootenai Flats levees do need to be repaired that Boundary County will find funds to repair the levees. But without such a detailed inspection, there is even less chance that the levee problems will be properly addressed. This solution has been discussed with Boundary County officials, and they seem pleased with this approach.

Some of the other alternatives also hold some promise. Alternative 2 would be a good alternative to pursue if there were a funding source for the detailed studies of each drainage district. Undoubtedly there are at least a few of the 16 diking districts where it would make sense to improve the existing drainage system. Alternative 3 would be a good solution to address the seepage problem, but only if it were shown that recent fish flows in late spring/early summer did not help sturgeon. Alternative 5 might be a good solution, but only if Congress were willing to create the compensation fund and this was acceptable to the county. Alternatives 6, 7, and 8 may also hold some promise, but this would require action by other agencies and groups, and it is not known if these solutions are acceptable to the county.

6. **Federal Interest.** There is a federal interest in pursuing alternative 9, but there is no federal interest in pursuing a cost-shared feasibility study at this time. There already is an EIS process that is underway and it is appropriate to expand the scope of this study in order to better understand the impacts that farmers have faced since fish flows were begun in the early 1990's. As the EIS discusses possible future Libby Dam flow regimes to address sturgeon concerns, it is also appropriate that this EIS address the probable impact that these regimes would have on farmers. Likewise, the Corps has an existing levee inspection program under PL84-99, and it is appropriate that Boundary County ask for an inspection of their levees under this program. If the inspection reveals significant levee problems, then the federal government should encourage the county to address these problems.

7. **Preliminary Financial Analysis.** As this reconnaissance effort will not lead to the development of a traditional cost-shared feasibility report with a sponsor, a financial analysis of the sponsor is not needed.

8. **Study Assumptions and Time Frame.** Although we will not be entering into a cost-shared feasibility phase with Boundary County with this recommended deferral, by shifting to different authorities we will be able to continue to study issues that are important to the county. The assumptions are:

- a. Kootenai Flats seepage issues and concerns will be addressed in the Corps' Upper Columbia Alternative Flood Control and Fish Operations EIS, the draft of which is due in the fall of 2003 and the final in the spring of 2004. Through this period of additional discussion, it is hoped that the solution to this seepage problem will be developed, while at the same time a plan can be devised that will help sturgeon. The

eventual solution to the seepage problem may be compensation to affected farmers, improvement of the drainage systems within particular districts, the development of a flow regime that helps fish but minimizes seepage, or some other solution that has not been discussed yet.

- b. The problem of Kootenai Flats levee deterioration will be addressed by the county sending the Seattle District a letter requesting that particular levees be inspected for inclusion in the Corps' PL84-99 levee rehabilitation program. The Corps will then request and receive money for this inspection, and the inspection will detail any levee deficiencies. It is assumed that the earliest this inspection could be conducted is the spring of 2002. It is also assumed that the county will eventually be successful in finding funds needed to fix any levee deficiencies called out in the Corps report.

9. **Study Cost Estimate.** Although this deferral would not result in a feasibility study under the General Investigation Program, there would be costs associated with the continued study of the seepage problem and the levee inspection. Discussions concerning the seepage problem would be continued under the Upper Columbia Alternative Flood Control and Fish Operations EIS and this would increase the budget for this EIS. Funds remaining in the reconnaissance phase for the Kootenai River GI study would be used to add seepage information to the EIS. It is unknown how much the Corps' levee inspection would cost at this time, as it is unclear which levees Boundary County will ask the Corps to inspect.

10. **Views of Other Resource Agencies.** The US Fish and Wildlife Service supports the idea of continuing the discussions on seepage problems in the Kootenai Flats area via the Upper Columbia Alternative Flood Control and Fish Operations EIS. Likewise, it supports the Corps completing an inspection of the Kootenai River levees. The Service has encouraged the Corps to attempt to further clarify the effects of Libby Dam operations which are directly attributable to sturgeon augmentation flows versus operations to meet other requirements.

11. **Study Area Map.** A map of the study area has been provided as enclosure 1.

12. **Recommendations.** I recommend that the Kootenai River Study be deferred at this time and that we not proceed with a cost-shared feasibility study. Additional studies and discussions need to be accomplished to better understand both the seepage problems and the levee erosion problems that are impacting the residents of Kootenai Flats. These studies should be undertaken using other Corps authorities and funding sources.

I recommend that a discussion of seepage impacts to farmers be included, in more detail than had been originally planned, in the Upper Columbia Alternative Flood Control and Fish Operations EIS, the draft of which is due in the fall of 2003. This would include impacts resulting from the present fish flows and potential future fish flows. It is hoped that the additional discussions and study will lead to a solution that benefits sturgeon and satisfies farmers.

I recommend that in order to better understand the levee and bank erosion problems in Kootenai Flats, that Boundary County formally request that levees of concern be inspected by the Corps of Engineers for possible inclusion under the Corps' Public Law 84-99 levee rehabilitation program. This inspection will reveal, in detail, which levees need to be improved and which levees do not. For the levees that need to be improved, Boundary County could rely on funds from the appropriate drainage districts, or an Economic Development Agency Grant, or some other source of funding to bring the levees up to acceptable standards.

RALPH H. GRAVES  
Colonel, Corps of Engineers  
Commanding     /s/  
7/25/01